INL opens high-speed computing center

New modern INL high-performance computing center and supercomputer significantly enhance nuclear energy research

The U.S. Department of Energy's Idaho National Laboratory is opening its High-Performance Computing Center, taking a major step in achieving the laboratory's vision to become the nation's leading nuclear energy research, development and demonstration laboratory.

"INL's new Computing Center will be a key tool as the lab continues to lead the way in the design and development of next generation nuclear reactors to provide safe, emissions-free nuclear energy in the United States," Principal Deputy Assistant Secretary for Nuclear Energy Shane Johnson said. "Advancements in nuclear technology will help spur the expansion of nuclear energy to meet growing energy demand around the world."

John Grossenbacher, INL laboratory director, takes part in official dedication of the high-performance computing center at the INL.

The Center will give INL enhanced capabilities in computer modeling, simulation and visualization to support reactor development.

INL High-Performance Computing Center will assist researchers in the analysis of reactor designs and processes. Its capabilities are similar to the computational design approach that aircraft manufacturers use to simulate different prototypes before selecting a final design. While a new reactor design will be rigorously tested before it is built and operated, simulation and modeling tools at the Computing Center can reduce the time and cost of the traditional design cycle and help ensure investments are made in the most promising reactor technologies.

Highlights of INL's recent achievements in high-performance computing include:

- INL's supercomputer is rated as #64 in computational speed, according to the November 2007 TOP500 world's fastest supercomputer list.
- The High-Performance Computing Center includes a 3,700-square-foot raised floor computer area that is expandable to 10,000 square feet.
- The new Computing Center accommodates planned growth in high-performance computing at the laboratory and supports INL's five distinctive scientific signatures:
    - Advanced materials and nuclear fuel science
    - Theory, modeling and simulation
    - Separations and actinide science
    - Microbiological and geological systems science
    - Instrumentation, control, and intelligent systems
- The Computing Center, coupled with an increase in network bandwidth, helps position INL to pursue national and international research and scientific collaboration.
- High-performance computing can significantly reduce the time required for complex calculations, often from months to days.
- Interactive visualization capabilities enable the analysis and assessment of complex modeling and simulation results.
- The Computing Center is designed to be highly energy efficient and utilizes a modern cooling system that functions at a higher efficiency than conventional data centers. The environmentally friendly design includes a generator capable of using 15 percent biodiesel for backup power. This generator will prevent a power outage from impacting the computing work under way in the center.

INL will dedicate the High-Performance Computing Center on Dec. 10 at 11 a.m. in the Engineering Research Office Building visualization lab on the Research and Education Campus.

Watch the video. (7.0MB WMV)

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Shane Johnson, principal deputy associate secretary of Nuclear Energy, congratulates the INL on an outstanding year at the dedication ceremony.